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shown to their brethren from abroad, and not less for the graceful and courteous manner in which this hospitality has been extended, with the promise that wherever our meetings may be held in the future every visiting Buffalo botanist will find a warm reception in our hearts and homes.

The President *pro. tem.* expressed the thanks of the Club to Prof. J. C. Arthur for his valuable services as Secretary in the past and his arduous labors in organizing the present meeting.

The Club then adjourned to meet at 9 A.M. on the second day of the next meeting of the A. A. A. S.

In the Biological Section the following papers were presented: Atavism the Result of Cross-breeding Lettuce, by E. Lewis Sturtevant; The Bulliform or Hygroscopic Cells of Grasses and Sedges Compared, by W. J. Beal; Synopsis of North American Pines based upon Leaf Anatomy, by J. M. Coulter and J. N. Rose; The Development of the Gymnosporangia of the United States, by W. G. Farlow; Plan for Laboratory Work in Chemical Botany, by Lillie J. Martin; A Study in Agricultural Botany, by E. Lewis Sturtevant; Botany of Timber Trees, with special reference to the requirements of Forestry, by B. E. Fernow; Memoranda of a Revision of the North American Violets, by Asa Gray; A Revision of the North American species of the genus *Fissidens*, by C. R. Barnes.

During the meeting of the Association the botanists visited Niagara Falls and Point Abino, Canada, excursions kindly provided by the local committee.

Index to Recent American Botanical Literature.

Abies Engelmannii. (Garden, xxx., p. 100.)

It is stated that this tree succeeds remarkably well in St. Petersburg despite the extreme cold of Russian winters, and that it is not improbable that it will in the future form an important element in the formation of artificial forests in Northern Europe.

Agrimonia Eupatoria. P. Baccarini. "Intorno ad una probabile funzione meccanica dei cristalli di ossalato calcico." (Ann. R. I., Bot. di Roma., i., p. 154, t. xv.)

Amaryllis Atamasco. (Vick's Ill. Month. Mag., ix., p. 207; colored plate.)

Aquilegia Skinneri, Hook. (Gard. Chron., xxvi., p. 146.)

Asimina.—*The Genus*. Asa Gray. (Botan. Gazette, xi., pp. 161-164.)

Dr. Gray recognizes six North American species of this genus: *A. triloba*, Dunal; *A. parviflora*, Dunal; *A. grandiflora*, Dunal; *A. cuneata*, Shuttleworth, (which is probably *A. reticulata*, Chapm.); *A. angustifolia*, n. sp., (*Uvaria pygmæa*, Torr. and Gray, in part), and *A. pygmæa*, Dunal. The fruits of the southern shrubby species have been but rarely collected, and are much needed in herbaria. The petals of *Asimina* are not truly valvate in aestivation as was formerly supposed, but when fully grown their summits are more or less imbricated.

Azalea occidentalis. (Gard. Chron., xxvi., pp. 104, 105, f. 21.)

Botanical Trip into Lower California. C. R. Orcutt. (W. Am. Scientist, ii., pp. 53-58.)

This is an amusing and interesting account of personal experiences in collecting specimens during March of this year. Near the mouth of San Telmo Cañon were found "beautiful specimens of Dr. Parry's *Harfordia*," and localities for many other interesting plants are noted.

Calochortus Obispoensis, n. sp. J. G. Lemmon. (Botan. Gazette, xi., pp. 180, 181.)

This species is allied to *C. Weedii* and *C. clavatus*, and has been collected in several places about San Luis Obispo, Cal.

Carpenteria Californica. (Gard. Chron., xxvi., p. 115, f. 22; also p. 149.)

Castanea vulgaris.—*Observations on the Structure of*. P. H. Dudley. (Journ. N. Y. Micros. Soc., ii., pp. 73, 74.)

Cayuga Flora, The.—(Part I). Wm. R. Dudley. (Bull. Cornell Univ. (Science), vol. ii., 8vo, pp. 30 + 132, Ithaca, 1886.)

A most valuable catalogue of the Phanerogamia growing without cultivation in the Cayuga Lake Basin, Western New York. 1,160 species and 118 varieties are enumerated. The species native to the region number 963, those introduced 197, and those spontaneous but not established and not included in the above, number 53. In the introduction the following topics are ably discussed: "The Limits of the Flora and its Physical Characters," "The Lesser Floras," "The Affinities of the Cayuga Flora,"

"The Primitive Flora," "Sketch of the Explorations," "Statistics of the Catalogue," "Explanation of the Plan of the Catalogue," and "The Disappearance of Species." Two excellent maps—one of the lake region of Central New York, the other of Ithaca and vicinity—are prefixed, and an index to genera and species is appended. Full localities are given for all species listed; all forms mentioned, not recorded in Gray's Manual, are described in full. Altogether we regard Professor Dudley's work as one of the most useful and interesting local plant catalogues yet published.

Chionanthus Virginica, L. R. Pirotta. "Sulla struttura del seme nelle Oleacee." (Ann. R. I. Bot. di Roma, i., pp. 1-48, t. i-v.)

Corydalis aurea and its Allies. Asa Gray. (Botan. Gazette, xi., pp. 188, 189.)

C. micrantha, n. sp. is the *C. aurea*, var. *micrantha*, of Engelm. Cotton Fibre. H. L. Brevoort. (Journ. N. Y. Micros. Soc., ii., p. 81; two figures.)

Dandelion.—*The*. E. L. Sturtevant. (Proc. Sixth Meeting Soc. Prom. Agric. Sci., pp. 40-42; also in Amer. Nat., xx., pp. 5-9; see note in this BULLETIN, xiii., pp. 10, 11.)

Edible Mushrooms of the United States. Thomas Taylor. (In Rep. Comm. Agric., 1885, pp. 100-108, one colored plate.)

Descriptions and figures are given of *Lactarius deliciosus*, *Cantharellus cibarius*, *Marasmius oreades*, *Hydnum repandum*, *Agaricus campestris*, *Coprinus comatus*, *Morchella esculenta*, *Clavaria cinerea*, *C. rugosa*, *Boletus edulis*, *Lycoperdon giganteum* and *Fistulina Hepatica*.

Elias Magnus Friés. Wm. R. Dudley. (Journ. Mycol., ii., pp. 91-94.)

An interesting account of the life and work of this great mycologist.

Fertilization in Campanula Americana.—*The process of*. C. R. Barnes. (Proc. Thirty-fourth Meeting A. A. A. S., p. 293, abstract; published in Botan. Gazette, x., pp. 349-354, plate.)

Florida Fungi.—*Notes on*. W. W. Calkins. (Journ. Mycol., ii., pp. 89, 90.)

A list of thirty-five species of *Polyporus* with habitats.

Fraxinus Americana, L. R. Pirotta. "Sulla struttura del seme nelle Oleacee." (Ann. R. I. Bot. di Roma, i., p. 1-48, t. i-v.)

Fungi of California.—Notes on some injurious. W. G. Farlow. (Proc. Thirty-fourth Meeting A. A. A. S., pp. 300-303; also in Proc. Sixth Meeting Soc. Prom. Agric. Science, pp. 29-31.)

Dr. Farlow found *Nicotiana glauca*, Grah., afflicted with *Peronospora Hyoscyami*, DeBy.; *P. Halstedii*, a common species of the Eastern States, grows on *Madia sativa* near San Francisco, and *P. leptosperma*, DeBy., on *Artemisia Ludoviciana* in Southern California.

Fungi from various Localities.—New Species of. J. B. Ellis and B. M. Everhart. (Journ. Mycol., ii., pp. 87-89.)

A new genus, *Coscinaria*, of the Pyrenomycetes, of a single species, *C. Langloisii*, from near Baton Rouge, La., a variety of *Dacrymyces corticoides*, E. and E., *Peziza heteromorpha*, *Hypoxylon bicolor* and *Diatrype Comptoniæ* are characterized.

Fungous Diseases of Plants. F. Lamson Scribner. (In Rep. Comm. Agric., 1885, pp. 76-87, two plates.)

Germination Studies. E. L. Sturtevant. (Proc. Thirty-fourth Meeting A. A. A. S., pp. 287-291.)

Gopher-root. Dudley W. Adams. (Gard. Month., xxviii., p. 244.)

A local name in Florida for *Chrysobalanus oblongifolius*.

Grasses of Yellowstone National Park. I.—F. Lamson Scribner and Frank Tweedy. (Botan. Gazette, xi., pp. 169-178.)

This paper is the first part of an enumeration of the Gramineæ of the Yellowstone, collected by Mr. Tweedy in 1884 and 1885. The new forms described are as follows: *Alopecurus occidentalis*; *Stipa comata*, Trin. and Rupr., var. *intermedia*, and *Deyeuxia dubia*; six of the species enumerated are not in Coulter's Manual.

Gymnosporangium macropus on *Pyrus coronaria*. B. D. Halsted. (Botan. Gazette, xi., pp. 190, 191.)

Hybridization and Cross-breeding of Plants. E. L. Sturtevant. (Proc. Thirty-fourth Meeting A. A. A. S., pp. 283-287.)

Ipomœa leptophylla. (Vick's Ill. Month. Mag., ix., p. 24.)

The popular name Man-of-the-earth is applied to this species in Colorado as it is in the East to *I. pandurata*.

Iris Douglasiana. (Gartenflora, t. 1, 222.)

Lettuce. E. L. Sturtevant. (Proc. Sixth Meeting Soc. Prom. Agric. Science, pp. 43, 44; see also Amer. Nat., xx., pp. 230-233, and note in this BULLETIN, xiii., p. 44.)

Lilium Parryi. This lily from S. California is figured in Illustration Horticole, t. 595.

Mechanical Injuries to Trees by Cold. T. J. Burrill. (Proc. Thirty-fourth Meeting A. A. A. S., pp. 298-300, abstract.)

Medicinal Plants. Geo. Vasey. (In Rep. Comm. Agric., 1885, pp. 63-75; sixteen plates.)

Among foreign medicinal plants which may, perhaps, be successfully cultivated in the United States, Dr. Vasey notes the Poppy, which has already been tried in several States, Liquorice, Rhubarb, Vanilla, which he thinks may be successfully grown in southern Florida, and the Marsh Mallow, which has become locally naturalized on the coasts of New York and New England. Descriptions and good figures are given of the following native species of medicinal value: *Jeffersonia diphylla*, *Ilex Cassine*, *Rhamnus Purshianus*, *Cassia Marylandica*, *Gillenia trifoliata*, *Hamamelis Virginica*, *Liquidambar styraciflua*, *Grindelia robusta*, *Eriodictyon glutinosum*, *Euphorbia corollata*, *E. Ipecacuanhæ*, *Aristolochia Serpentaria*, *Asarum Canadense*, *Anemopsis Californica*, *Arisæma triphyllum*, and *Symplocarpus foetidus*.

Megarrhiza Californica. A. Baldini. "Sul tallone di alcune Cucurbitacee." (Ann. R. I. Bot. di Roma, i., p. 49, t. vi.)

Nelumbium luteum. P. Baccarini. "Osservazioni anatomiche sopra alcuni ricettacoli fiorali." (Ann. R. I. Bot. di Roma, i., p. 82, t. xiii, fig. 11.)

Notholæna tenera, Gill.—*A rare fern.* L. G. Yates. (Botan. Gazette, xi., p. 181.)

This fern, hitherto found only in the United States at a single station in southern Utah, is now reported from Santa Barbara Co., Cal.

Nuphar.—*Revision of the North American species of.* Thomas Morong. (Botan. Gazette, xi., pp. 164-169; one plate.)

Five species are described: *N. advena*, Ait., which extends westward to Utah, with a var. (?) *minor*, having flowers about an inch in diameter when expanded, from Herkimer Co., N. Y.; *N. rubrodiscum*, n. sp., common in parts of Lake Champlain,

which Mr. Morong suspects to have originated from a hybrid between *N. advena* and *N. Kalmianum* (*N. luteum*, var. *pumilum*, Gray), which latter is his third species; *N. polysepalum*, Engelm., of western America, and *N. sagittifolium*, Pursh., of the southern Atlantic States.

Osmanthus Americana (*Olea Americana*). R. Pirotta. "Sulla struttura del seme nelle Oleacee." (Ann. R. I. Bot. di Roma, pp. 15-17, t. i., fig. 9-10.)

Outline of Study of Chemical Botany. Lillie J. Martin. (Botan. Gazette, xi., pp. 178-180.)

Pear Blight.—*Proof that Bacteria are the direct cause of the disease known as*. J. C. Arthur. (Proc. Thirty-fourth Meeting A. A. A. S., pp. 295-298; also in Botan. Gazette, x., pp. 343-345, and in Gard. Chron., xxiv., p. 586.)

Pig-nut Hickory.—*A fine*. (Gard. Month., xxviii., pp. 241-243; one figure.)

A tree of this *Carya*, 113 feet high and 12 feet in circumference 5 feet above the ground, is reported growing on the property of Mr. Geo. W. Childs, in Philadelphia. A good figure is given, taken from a photograph of the tree while it was bare of leaves.

Pinus monophylla. Sir J. D. Hooker. (Gard. Chron., xxvi., p. 136, fig. 24.)

Sir J. D. Hooker questions the correctness of Dr. Newberry's conclusion that *P. monophylla* is but a form of *P. edulis* (Bull. Torr. Bot. Club., xii., p. 50), and adduces personal observations in Nevada, as well as experience at Kew, to show that the two are specifically distinct. Dr. Hooker states that he is "not aware whether their male and female flowers and cones have been critically compared."

Pond-scums (*Zygnemaceæ*).—*The Question of Bisexuality in the*.

C. E. Bessey. (Proc. Thirty-fourth Meeting A. A. A. S., p. 291; abstract.)

Professor Bessey concludes that these plants possess undifferentiated sexuality, and may be designated unisexual; also that they are to be classed with the lower Thallophyta, but little above Protophyta.

Prothallium of Ferns. Douglas H. Campbell. (Proc. Thirty-fourth Meeting A. A. A. S., pp. 292, 293, abstract; published in Botan. Gazette, x., pp. 355-360; plate ix.)

Relation of Ovary and Perianth in the Development of Dicotyledons. J. M. Coulter. (Proc. Thirty-fourth Meeting A. A. A. S., pp. 294, 295; abstract published in *Botan. Gazette*, x., pp. 360-363.)

Rhus typhina.—*The Stag's-Horn Sumach*. (Garden, xxx., p. 111.)

It is noted that the collection and preparation of the leaves has assumed large proportions in Virginia.

Ræsteliæ from Gymnosporangia.—*Development of*. W. G. Farlow. (*Botan. Gazette*, xi., pp. 189, 190.)

Mr. Roland Thaxter has continued Dr. Farlow's cultures of spores of the Gymnosporangia upon young plants of *Amelanchier*. Those of *G. clavipes*, C. and P., were followed by *R. aurantiaca*, Peck; those of *G. conicum*, DC., by *R. cornuta*, Fr., and those of *G. clavariæforme*, DC., by *R. lacerata*, Fr.

Rubus deliciosus.—*The Odor of*. (Gard. Chron., xxvi., p. 50.)

The odor given off by the young foliage and flower buds of this showy western bramble is compared to that of bleaching linen or soap-suds, and is not disagreeable. It seems that all the plants grown in England bear white flowers. At Kew it blooms abundantly but never matures any fruit.

Science of Botany.—*The Demands made by Agriculture upon the*.

C. E. Bessey. (Proc. Sixth Meeting Soc. Prom. Agric. Sci., pp. 16-18.)

Smut of Timothy. Wm. Trelease. (In Rep. Comm. Agric., 1885, pp. 87, 88; plate xviii.)

This disease is caused by the growth of the fungus *Tilletia striæformis*, Westd., which occurs in Europe in the leaves of several other grasses, and has been noticed by Professor Trelease in Wisconsin on *Elymus Canadensis*, var. *glaucofolius*, and in Massachusetts on *Triticum repens*. It was especially destructive to Timothy in parts of Wisconsin in the spring of 1883 and 1884.

Spiral Fibre of the Banana Stalk. J. L. Zabriskie. (Journ. N. Y. Micros. Soc., ii., pp. 71-73; one figure.)

Taxodium distichum. (Gard. Chron., xxvi., p. 148, fig. 28.)

Illustrations are given of abnormal growths of shoots, in some cases showing an indication of the formation of ovules at the base of the thickened bud scales.

Trichias.—*The banded-spore*., Geo. A. Rex. (Journ. Mycol., ii., pp. 85-87.)

Of the three species of the Slime Mould genus *Trichia* distinguished by reticulated or banded spores, only *T. chrysosperma*, Bull., has heretofore been recorded as American. Dr. Rex now finds plants which nearly answer the descriptions of *T. affinis*, De By., and *T. Jackii*, Rostfki. A list of specimens from widely separated localities is given.

Vancouveria. Asa Gray. (Botan. Gazette, xi., pp. 182, 183.)

Dr. Gray dissents from M. Franchet's views (Bull. Soc. Bot. France) that the genus should be merged in *Epimedium*.

Variation in Cultivated Plants. W. W. Tracy. (Proc. Sixth Meeting Soc. Prom. Agric. Science, pp. 45-48.)

Vitality of Seeds buried in the Soil. W. J. Beal. (Proc. Sixth Meeting Soc. Prom. Agric. Sci., pp. 14, 15.)

Wellingtonia gigantea. (Gard. Chron., xxvi., p. 18, f. 4.)

Trees of the giant *Sequoia*, planted in Lancashire, England, in the autumn of 1864, have now reached a height of 40 feet, and are 8 feet in circumference just above the base. A reproduction from a photograph illustrates one of the trees.

Woods and their Destructive Fungi. P. H. Dudley, C. E. (Pop. Sci. Month. xxix., pp. 604-617, illustrated.) II.

The practical side of the subject, detailing the action of fungi on telegraph poles, fence posts, ties and timbers, with descriptions and illustrations of their special enemies, and their mode of attack, are here given. The article concludes with a discussion of the various methods of preserving wood and an estimate of the annual loss in money to the railroads in this country resulting from the action of fungi.

Botanical Notes.

Annuario del R. Istituto Botanico di Roma. Edited by R. Pirota. We have just received the first four fascicles of this valuable periodical, illustrated by twenty-eight beautiful lithographs. Besides several interesting general articles, there are enumerated the fungi, lichens, algæ, and hepatics from the vicinity of Rome. In the last fascicle a new species of *Plagiochila* is described and figured.